

## BAND-BY-BAND FULL DUPLEX COMMUNICATION

### ABSTRACT

5        A telephone includes a first channel having a  
microphone input and a line output, a second channel  
having a line input and a speaker output, and each  
channel having a plurality of band pass filters with  
their outputs coupled to a multiplex circuit. The  
10       multiplex circuit selects subsets of the signals in each  
channel in accordance with the magnitudes of the signals  
in each band. Thus, full duplex operation is provided in  
accordance with the spectral content of each channel. In  
one embodiment of the invention, the multiplex circuits  
15       initially allocate alternate bands within each channel  
and complementary bands between the channels, thereby  
emulating a complementary comb filter. Thereafter, bands  
are allocated according to spectral content.